Sign rule for multiplying



Sign rule for dividing



-4×6



$-4 \times (-6)$



$-24 \div (-4)$



Why is a negative times a negative positive?



Product of an even number of negatives



$(-3)^2$



the same as for multiplying



same signs give a positive; different signs give a negative



24



−24



pattern: $3\times(-2) = -6$, $2\times(-2) = -4$, $1\times(-2) = -2$, $0\times(-2) = 0$, so $-1\times(-2) = +2$



6



9



positive



-3^2

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Order of operations

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Exponent

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What if operations tie?

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Work out $12 - 4 + 2$

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Work out $24 \div 4 \times 2$

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$2 + 3 \times (-4)^2$

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$(2 + 3)^2$ compared with $2 + 3^2$

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Brackets, exponents, division and multiplication, then addition and subtraction

–9: only the 3 is squared

work from left to right

a power or a root, e.g. 3^2 or $\sqrt{9}$

12 (left to right)

10 (left to right)

25 compared with 11

$2 + 3 \times 16 = 50$

How to set out working

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Distributive property

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Area model for 4(x + 3)

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Expand 5(x + 2)

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Expand –3(x – 4)

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Expand 2(3x – 5)

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How can you check an expansion?

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6 × 47 using the distributive property

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a(b + c) = ab + ac: multiply the outside by every term inside

one operation per line, equals signs in a column

5x + 10

a rectangle of height 4 and width x + 3 has area 4x + 12

6x – 10

–3x + 12 (every sign flips)

6 × 40 + 6 × 7 = 240 + 42 = 282

substitute a number: if x = 2, 5(x + 2) = 20 and 5x + 10 = 20